

## WHAT IS CLAIMED IS:

1                   1.     An apparatus for aerial spray marking of ground surfaces,  
2     said apparatus comprising:  
3                   a source of a marking substance; and  
4                   means for producing a highly forceful shot of said marking  
5     substance capable of penetrating dense foliage.

1                   2.     The apparatus of claim 1 wherein said means for  
2     producing a highly forceful shot is a solid stream spray nozzle.

1                   3.     The apparatus of claim 2 further comprising means for  
2     tilting said solid stream spray nozzle.

1                   4.     The apparatus of claim 1 further comprising means for  
2     adjusting shot forcefulness.

1                   5.     The apparatus of claim 1 further comprising means for  
2     supporting said apparatus from an aircraft.

1                   6.     A system for aerial spraying of ground surfaces, said  
2     system comprising:  
3                   a storage tank for holding a substance;  
4                   means for pressurizing said storage tank;  
5                   a spray nozzle assembly; and  
6                   a feed line connecting said storage tank and said nozzle  
7     assembly so as to deliver pressurized substance to said spray nozzle  
8     assembly.

1                   7.     The system of claim 6 wherein said means for  
2     pressurizing said storage tank includes a cylinder of compressed gas.

1                   8.     The system of claim 7 wherein said cylinder contains an  
2     inert gas.

1                   9.     The system of claim 7 further comprising a pressure  
2     regulator, a high pressure line connecting said cylinder to said pressure  
3     regulator, and a first regulated gas line connecting said pressure regulator to  
4     said storage tank.

1                   10.    The system of claim 9 wherein said spray nozzle  
2   assembly includes a first valve connected to said feed line, a spray nozzle  
3   connected to said first valve, and a second valve arranged to open and close  
4   said first valve.

1                   11.    The system of claim 10 wherein said spray nozzle is a  
2   solid stream spray nozzle.

1                   12.    The system of claim 10 further comprising means for  
2   tilting said spray nozzle.

1                   13.    The system of claim 10 further comprising:  
2                   a second regulated gas line connecting said pressure regulator  
3   to said second valve; and  
4                   first and second pneumatic control ports fluidly connecting said  
5   second valve to said first valve, wherein said second valve is a solenoid valve  
6   having a first state in which said first pneumatic control port is pressurized by  
7   said second regulated gas line and a second state in which said second  
8   pneumatic control port is pressurized by said second regulated gas line, and  
9   wherein said first valve is closed when said first pneumatic control port is  
10   pressurized and said first valve is opened when said second pneumatic  
11   control port is pressurized.

1                   14.    The system of claim 13 further comprising a controller for  
2   controlling said second valve.

1                   15.    The system of claim 14 further comprising means for  
2   selecting how said controller controls said second valve.

1                   16.    The system of claim 14 further comprising a shut off  
2   valve disposed in said feed line.

1                   17.    The system of claim 16 further comprising means for  
2   sensing pressure of gas output from said pressure regulator, said controller  
3   controlling said shut off valve in response to said means for sensing pressure.

1                   18.    The system of claim 7 further comprising a frame, said  
2   storage tank, said cylinder and said spray nozzle assembly all being mounted  
3   on said frame.

1                   19.    The system of claim 18 wherein said cylinder is  
2   removably mounted to said frame.

1                   20.    The system of claim 18 further comprising means for  
2   supporting said frame from an aircraft.

1                   21.    The system of claim 20 wherein said means for  
2   supporting includes at least one attachment arm extending from said frame  
3   and a cable connected at one end to said attachment arm and at another end  
4   to an aircraft.

1                   22.    The system of claim 6 wherein said spray nozzle  
2   assembly includes a main valve connected to said feed line and a spray  
3   nozzle connected to said main valve.

1                   23.    The system of claim 22 wherein said spray nozzle is a  
2   solid stream spray nozzle.

1                   24.    The system of claim 22 further comprising means for  
2   tilting said spray nozzle.

1                   25.    The system of claim 22 further comprising a shut off  
2   valve disposed in said feed line between said storage tank and said main  
3   valve.

1                   26.    A method for aerial spray marking of ground surfaces,  
2   said method comprising:  
3                   providing a source of a marking substance;  
4                   flying over a ground surface; and  
5                   spraying a highly forceful shot of said marking substance onto  
6   said ground surface, wherein said shot is forceful enough to penetrate dense  
7   foliage.

1                   27.    A method for aerial spraying of ground surfaces, said  
2   method comprising:

3 providing a storage tank for holding a substance to be sprayed;  
 4 pressurizing said storage tank;  
 5 supplying pressurized substance from said storage tank to a  
 6 spray nozzle assembly;  
 7 flying over a target site; and  
 8 selectively activating said spray nozzle assembly to spray  
 9 pressurized substance onto ground surfaces.

1 22. The method of claim 27 wherein said storage tank is  
 2 pressurized by introducing a pressurized gas into said storage tank.

1 29. The method of claim 28 wherein said gas is an inert gas.

1 30. The method of claim 28 further comprising sensing the  
 2 pressure of said pressurized gas and shutting off supply of pressurized  
 3 substance from said storage tank to said spray nozzle assembly if the sensed  
 4 pressure falls below a predetermined level.

1 31. The method of claim 28 further comprising selecting the  
 2 pressure of said pressurized gas introduced into said storage tank.

1 32. The method of claim 27 wherein said spray nozzle  
 2 assembly includes a solid stream spray nozzle.

1 33. The method of claim 32 further comprising tilting said  
 2 spray nozzle to a desired angle.

1 34. The method of claim 27 wherein a pressurized gas is  
 2 used to selectively activate said spray nozzle assembly.

1 35. The method of claim 27 wherein said substance to be  
 2 sprayed is a marking substance.

1 36. The method of claim 35 wherein said substance includes  
 2 paint.

1 37. The method of claim 35 wherein said substance includes  
 2 a luminescent material.